

# SEQUENCE LISTING

<110> Friddle, Carl Johan  
Hilbun, Erin  
Gerhardt, Brenda  
Mathur, Brian  
Walke, D. Wade  
Turner, C. Alexander Jr.

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 tctgcgttct acacagtcgt gccccgacc ctgaaccccg tcatctatag tctgaggaat 840  
 agggacatga aggcagccct gagaaggcag tgtggtccct ga 882

<210> 12  
 <211> 293  
 <212> PRT  
 <213> homo sapiens

<400> 12  
 Met Gly Phe Ser Asn Ser Trp Asp Ile Gln Ile Val His Ala Ala Leu  
 1 5 10 15  
 Phe Phe Leu Val Tyr Leu Ala Ala Val Ile Gly Asn Leu Leu Ile Ile  
 20 25 30  
 Ile Leu Thr Thr Leu Asp Val His Leu Gln Thr Pro Met Tyr Phe Phe  
 35 40 45  
 Leu Arg Asn Leu Ser Phe Leu Asp Phe Cys Tyr Ile Ser Val Thr Ile  
 50 55 60  
 Pro Lys Ser Ile Val Ser Ser Leu Thr His Asp Thr Ser Ile Ser Phe  
 65 70 75 80  
 Phe Gly Cys Ala Leu Gln Ala Phe Phe Phe Met Asp Leu Ala Thr Thr  
 85 90 95  
 Glu Val Ala Ile Leu Thr Val Met Ser Tyr Asp Arg Tyr Met Ala Ile  
 100 105 110  
 Cys Arg Pro Leu His Tyr Glu Val Ile Ile Asn Gln Gly Val Cys Leu  
 115 120 125  
 Arg Met Met Ala Met Ser Trp Leu Ser Gly Val Ile Cys Gly Phe Met  
 130 135 140  
 His Val Ile Ala Thr Phe Ser Leu Pro Phe Cys Gly Arg Asn Arg Ile  
 145 150 155 160



Arg Gln Phe Phe Cys Asn Ile Pro Gln Leu Leu Ser Leu Leu Asp Pro  
 165 170 175  
 Lys Val Ile Thr Ile Glu Ile Gly Val Met Val Phe Gly Thr Ser Leu  
 180 185 190  
 Val Ile Ile Ser Phe Val Val Ile Thr Leu Ser Tyr Met Tyr Ile Phe  
 195 200 205  
 Ser Val Ile Met Arg Ile Pro Ser Lys Glu Gly Arg Ser Lys Thr Phe  
 210 215 220  
 Ser Thr Cys Ile Pro His Leu Val Val Val Thr Leu Phe Met Ile Ser  
 225 230 235 240  
 Gly Ser Ile Ala Tyr Val Lys Pro Ile Ser Asn Ser Pro Pro Val Leu  
 245 250 255  
 Asp Val Phe Leu Ser Ala Phe Tyr Thr Val Val Pro Pro Thr Leu Asn  
 260 265 270  
 Pro Val Ile Tyr Ser Leu Arg Asn Arg Asp Met Lys Ala Ala Leu Arg  
 275 280 285  
 Arg Gln Cys Gly Pro  
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<210> 13  
 <211> 1200  
 <212> DNA  
 <213> homo sapiens

<400> 13  
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 aatccatttt ttttctctct ttaggaagaa atggaacgac cacaagtgat tttaacacaaa 180  
 ctgaagttgc tgaatttttc ctcatgggat tttcgaattc ctgggatatt cagattgtac 240  
 atgctgctct attcttctta gtttacctgg cagctgtcat aggaaatctc ctaatcatca 300  
 tacttaccac tctggatgtt cacctccaaa cccaatgta tttctttttg agaaacttgt 360  
 ctttcttaga tttttgttac atctctgtca caattccaaa atctattgtt agttccttga 420  
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 tggcaactac ggaggtagcc atccttacag tgatgtccta tgaccgctat atggccatct 540  
 gccggccttt acattatgag gtcatacata accaagggtg ctgtctgagg atgatggcca 600  
 tgtcgtggct cagtgggggtg atctgtggat tcatgcatgt gatagcaaca ttctcattac 660  
 cattctgtgg gcgcaataga atacgtcaat ttttctgtaa tattccacag ctccaaagcc 720  
 tcttagaccc caaagtaatt accattgaga ttggagtcac ggttttttgg acaagtcttg 780  
 tgataatctc ctttgttgta attactctct cctacatgta ctttttttct gtcacatga 840  
 ggattccttc taaggagggt agatcaaaaa cattttctac ctgcattcca catcttgttg 900  
 ttgtaacact ctttatgata tctggcagca ttgcctatgt gaagccaatt tcaaatctc 960  
 cccccgttct ggatgttttc ctgtctgcgt tctacacagt cgtgcccccg accctgaacc 1020  
 ccgtcatcta tagtctgagg aatagggaca tgaaggcagc cctgagaagg cagtgtggtc 1080  
 cctgagaagg cagtgtggta tgctagatga agaatttgat tacggaccag actcttgaac 1140  
 tcttgcctta atcaggcaat ttgtaaactc tctgggttta tattttcaat tgattgctga 1200

<210> 14  
 <211> 1074  
 <212> DNA  
 <213> homo sapiens

<400> 14  
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 agagccattt cattgcaaga aatctcaaag atttcccttc ttttctgggt ccttctcttg 120

gtcatttcta gacttttact agccatgaca ctaggaaaca gcactgaagt cactgaattc 180  
tatcttctgg gatttgggtgc ccagcatgag ttttgggtgta tcctcttcat tgtattcctt 240  
ctcatctatg tgacctccat aatgggtaat agtggaataa tcttactcat caacacagat 300  
tccagatttc aaacactcac gtactttttt ctacaacatt tggtctttgt tgatatctgt 360  
tacacttctg ctatcactcc caagatgctc caaagcttca cagaagaaaa gaatttgata 420  
ttatttcagg gctgtgtgat acaattctta gtttatgcaa catttgcaac cagtgtactgt 480  
tatctcctgg ctatgatggc agtggatcct tatgttgcca tctgtaagcc ccttcactat 540  
actgtaatca tgtcccgaac agtctgcac cgtttggtag ctgggttcata catcatgggc 600  
tcaataaatg cctctgtaca aacagggtttt acatgttcac tgtccttctg caagtccaat 660  
agcatcaatc actttttctg tgatgttccc cctattcttg ctctttcatg ctccaatgtt 720  
gacatcaaca tcatgtact tgttgtcttt gtgggatcta acttgatatt cactgggttg 780  
gtcgtcatct tttcctacat ctacatcatg gccaccatcc tgaaaatgtc ttctagtgc 840  
ggaaggaaaa aatccttctc aacatgtgct tcccacctga ccgcagtcac cattttctat 900  
gggacactct cttacatgta ttgacagtct cattctaata attcccagga aaatatgaaa 960  
gtggccttta tattttatgg cacagttatt cccatgttaa atcctttaat ctatagcttg 1020  
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<210> 15  
<211> 357  
<212> PRT  
<213> homo sapiens

<400> 15  
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1 5 10 15  
Asp Leu Lys Tyr Arg Ala Ile Ser Leu Gln Glu Ile Ser Lys Ile Ser  
20 25 30  
Leu Leu Phe Trp Val Leu Leu Leu Val Ile Ser Arg Leu Leu Leu Ala  
35 40 45  
Met Thr Leu Gly Asn Ser Thr Glu Val Thr Glu Phe Tyr Leu Leu Gly  
50 55 60  
Phe Gly Ala Gln His Glu Phe Trp Cys Ile Leu Phe Ile Val Phe Leu  
65 70 75 80  
Leu Ile Tyr Val Thr Ser Ile Met Gly Asn Ser Gly Ile Ile Leu Leu  
85 90 95  
Ile Asn Thr Asp Ser Arg Phe Gln Thr Leu Thr Tyr Phe Phe Leu Gln  
100 105 110  
His Leu Ala Phe Val Asp Ile Cys Tyr Thr Ser Ala Ile Thr Pro Lys  
115 120 125  
Met Leu Gln Ser Phe Thr Glu Lys Asn Leu Ile Leu Phe Gln Gly  
130 135 140  
Cys Val Ile Gln Phe Leu Val Tyr Ala Thr Phe Ala Thr Ser Asp Cys  
145 150 155 160  
Tyr Leu Leu Ala Met Met Ala Val Asp Pro Tyr Val Ala Ile Cys Lys  
165 170 175  
Pro Leu His Tyr Thr Val Ile Met Ser Arg Thr Val Cys Ile Arg Leu  
180 185 190  
Val Ala Gly Ser Tyr Ile Met Gly Ser Ile Asn Ala Ser Val Gln Thr  
195 200 205  
Gly Phe Thr Cys Ser Leu Ser Phe Cys Lys Ser Asn Ser Ile Asn His  
210 215 220  
Phe Phe Cys Asp Val Pro Pro Ile Leu Ala Leu Ser Cys Ser Asn Val  
225 230 235 240  
Asp Ile Asn Ile Met Leu Leu Val Val Phe Val Gly Ser Asn Leu Ile  
245 250 255  
Phe Thr Gly Leu Val Val Ile Phe Ser Tyr Ile Tyr Ile Met Ala Thr

Ile	Leu	Lys	Met	Ser	Ser	Ser	Ala	Gly	Arg	Lys	Lys	Ser	Phe	Ser	Thr
		275					280					285			
Cys	Ala	Ser	His	Leu	Thr	Ala	Val	Thr	Ile	Phe	Tyr	Gly	Thr	Leu	Ser
	290					295					300				
Tyr	Met	Tyr	Leu	Gln	Ser	His	Ser	Asn	Asn	Ser	Gln	Glu	Asn	Met	Lys
305				310					315						320
Val	Ala	Phe	Ile	Phe	Tyr	Gly	Thr	Val	Ile	Pro	Met	Leu	Asn	Pro	Leu
			325					330					335		
Ile	Tyr	Ser	Leu	Arg	Asn	Lys	Glu	Val	Lys	Glu	Ala	Leu	Lys	Val	Ile
		340						345					350		
Gly	Lys	Lys	Leu	Phe											
		355													

<210> 16  
 <211> 930  
 <212> DNA  
 <213> homo sapiens

<400> 16  
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 ggtaaatagt gaataatcct actcatcaac acagattcca gatttcaaac actcacgtac 180  
 ttttttctac aacatttggc ttttggtgat atctgttaca cttctgctat cactcccaag 240  
 atgctccaaa gcttcacaga agaaaagaat ttgatattat ttcagggctg tgtgatacaa 300  
 ttcttagttt atgcaacatt tgcaaccagt gactgttatc tctgggctat gatggcagt 360  
 gatccttatg ttgccatctg taagccctt cactatactg taatcatgtc ccgaacagtc 420  
 tgcacocgtt tggtagctgg ttcatatc atgggctcaa taaatgcctc tgtacaaaca 480  
 gggtttacat gttcactgtc cttctgcaag tccaatagca tcaatcactt tttctgtgat 540  
 gttcccccta ttcttgcctt ttcatgtctc aatgttgaca tcaacatcat gctacttgtt 600  
 gtctttgtgg gatctaactt gatattcact ggggttggtc tcatcttttc ctacatctac 660  
 atcatggcca ccactctgaa aatgtcttct agtgcaggaa ggaaaaaatc cttctcaaca 720  
 tgtgcttccc acctgaccgc agtcaccatt ttctatggga cactctctta catgtatttg 780  
 cagtctcatt ctaataattc ccaggaaaat atgaaagtgg cctttatatt ttatggcaca 840  
 gttattccca tgttaaattc tttaattctat agcttgagaa ataagggaagt aaaagaagct 900  
 ttaaaagtga tagggaaaaa gttattttta 930

<210> 17  
 <211> 309  
 <212> PRT  
 <213> homo sapiens

<400> 17  
 Met Thr Leu Gly Asn Ser Thr Glu Val Thr Glu Phe Tyr Leu Leu Gly  
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 Phe Gly Ala Gln His Glu Phe Trp Cys Ile Leu Phe Ile Val Phe Leu  
 20 25 30  
 Leu Ile Tyr Val Thr Ser Ile Met Gly Asn Ser Gly Ile Ile Leu Leu  
 35 40 45  
 Ile Asn Thr Asp Ser Arg Phe Gln Thr Leu Thr Tyr Phe Phe Leu Gln  
 50 55 60  
 His Leu Ala Phe Val Asp Ile Cys Tyr Thr Ser Ala Ile Thr Pro Lys  
 65 70 75 80  
 Met Leu Gln Ser Phe Thr Glu Glu Lys Asn Leu Ile Leu Phe Gln Gly  
 85 90 95

09975308-101101

Cys Val Ile Gln Phe Leu Val Tyr Ala Thr Phe Ala Thr Ser Asp Cys  
 100 105 110  
 Tyr Leu Leu Ala Met Met Ala Val Asp Pro Tyr Val Ala Ile Cys Lys  
 115 120 125  
 Pro Leu His Tyr Thr Val Ile Met Ser Arg Thr Val Cys Ile Arg Leu  
 130 135 140  
 Val Ala Gly Ser Tyr Ile Met Gly Ser Ile Asn Ala Ser Val Gln Thr  
 145 150 155 160  
 Gly Phe Thr Cys Ser Leu Ser Phe Cys Lys Ser Asn Ser Ile Asn His  
 165 170 175  
 Phe Phe Cys Asp Val Pro Pro Ile Leu Ala Leu Ser Cys Ser Asn Val  
 180 185 190  
 Asp Ile Asn Ile Met Leu Leu Val Val Phe Val Gly Ser Asn Leu Ile  
 195 200 205  
 Phe Thr Gly Leu Val Val Ile Phe Ser Tyr Ile Tyr Ile Met Ala Thr  
 210 215 220  
 Ile Leu Lys Met Ser Ser Ser Ala Gly Arg Lys Lys Ser Phe Ser Thr  
 225 230 235 240  
 Cys Ala Ser His Leu Thr Ala Val Thr Ile Phe Tyr Gly Thr Leu Ser  
 245 250 255  
 Tyr Met Tyr Leu Gln Ser His Ser Asn Asn Ser Gln Glu Asn Met Lys  
 260 265 270  
 Val Ala Phe Ile Phe Tyr Gly Thr Val Ile Pro Met Leu Asn Pro Leu  
 275 280 285  
 Ile Tyr Ser Leu Arg Asn Lys Glu Val Lys Glu Ala Leu Lys Val Ile  
 290 295 300  
 Gly Lys Lys Leu Phe  
 305

<210> 18  
 <211> 2600  
 <212> DNA  
 <213> homo sapiens

<400> 18  
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 ttcagtcctt gttagatggt aaaatgaaga gaattgtttc ttgttcctca actacagaat 180  
 tgaaaaaaaa aagtaataga aaatgtaagg ctattttctca ggcatccatt acataatgag 240  
 gttatttttg ttgtaaagaa tatcacatag atgagagatg cagtctaggg atactaatac 300  
 aaagacacgt tgaagccttc aaacatatgt gaaccatgaa cacatttcaa aaaaattctc 360  
 tctaattcta ttaatttcca aagctggaac caaaattaaa atggtaagtg gctgtgaaca 420  
 attataagtt tctaaaaaag taaaaaatta catttttagca ttactttaaa aatatggata 480  
 gctgtttaat acagaggaaa attgtcaatc tatgtttcta agaactatac acattaggag 540  
 ttaggatact tctaagacaa tctccttcga ttttgaagat gaatccattt catcttacat 600  
 caagtaaadc actctttact tgatgattat aaatacatctt cttaaatttg aaaatgaata 660  
 acactattgt atttgtcata aaaatacaaa tagaaaaaag tgacttgaaa tatagagcca 720  
 tttcattgca agaaatctca aagattttccc ttcttttctg ggctccttctc ttgggtcattt 780  
 ctagactttt actagccatg acactaggaa acagcactga agtcactgaa ttctatcttc 840  
 tgggatttgg tgcccagcat gagttttggt gtatcctctt cattgtattc cttctcatct 900  
 atgtgacctc cataatgggt aatagtggaa taatcttact catcaacaca gattccagat 960  
 ttcaaacact cagctacttt ttctacaac atttggtctt tgttgatatc tgttacactt 1020  
 ctgctatcac tccaagatg ctccaaagct tcacagaaga aaagaatttg atattatttc 1080  
 agggctgtgt gatacaattc ttagtttatg caacatttgc aaccagtgcac tgttatctcc 1140  
 tggctatgat ggcagtggat ccttatgttg ccatctgtaa gccccttcac tatactgtaa 1200



101101-5052660

Gln	Val	Asp	Pro	Ala	Leu	Glu	Leu	Phe	Leu	Phe	Gly	Phe	Phe	Leu	Leu
			20					25					30		
Phe	Tyr	Ser	Leu	Thr	Leu	Met	Gly	Asn	Gly	Ile	Ile	Leu	Gly	Leu	Ile
		35					40					45			
Tyr	Leu	Asp	Ser	Arg	Leu	His	Thr	Pro	Met	Tyr	Val	Phe	Leu	Ser	His
	50					55					60				
Leu	Ala	Ile	Val	Asp	Met	Ser	Tyr	Ala	Ser	Ser	Thr	Val	Pro	Lys	Met
65					70					75					80
Leu	Ala	Asn	Leu	Val	Met	His	Lys	Lys	Val	Ile	Ser	Phe	Ala	Pro	Cys
			85						90					95	
Ile	Leu	Gln	Thr	Phe	Leu	Tyr	Leu	Ala	Phe	Ala	Ile	Thr	Glu	Cys	Leu
			100					105					110		
Ile	Leu	Val	Met	Met	Cys	Tyr	Asp	Arg	Tyr	Val	Ala	Ile	Cys	His	Pro
		115					120					125			
Leu	Gln	Tyr	Thr	Leu	Ile	Met	Asn	Trp	Arg	Val	Cys	Thr	Val	Leu	Ala
	130					135					140				
Ser	Thr	Cys	Trp	Ile	Phe	Ser	Phe	Leu	Leu	Ala	Leu	Val	His	Ile	Thr
145					150					155					160
Leu	Ile	Leu	Arg	Leu	Pro	Phe	Cys	Gly	Pro	Gln	Lys	Ile	Asn	His	Phe
				165				170						175	
Phe	Cys	Gln	Ile	Met	Ser	Val	Phe	Lys	Leu	Ala	Cys	Ala	Asp	Thr	Arg
		180						185					190		
Leu	Asn	Gln	Val	Val	Leu	Phe	Ala	Gly	Ser	Ala	Phe	Ile	Leu	Val	Gly
	195						200					205			
Pro	Leu	Cys	Leu	Val	Leu	Val	Ser	Tyr	Leu	His	Ile	Leu	Val	Ala	Ile
	210					215					220				
Leu	Arg	Ile	Gln	Ser	Gly	Glu	Gly	Arg	Arg	Lys	Ala	Phe	Ser	Thr	Cys
225					230					235					240
Ser	Ser	His	Leu	Cys	Val	Val	Gly	Leu	Phe	Phe	Gly	Ser	Ala	Ile	Val
				245					250					255	
Met	Tyr	Met	Ala	Pro	Lys	Ser	Ser	His	Ser	Gln	Glu	Arg	Arg	Lys	Ile
		260						265						270	
Leu	Ser	Leu	Phe	Tyr	Ser	Leu	Phe	Asn	Pro	Ile	Leu	Asn	Pro	Leu	Ile
		275					280					285			
Tyr	Ser	Leu	Arg	Asn	Ala	Glu	Val	Lys	Gly	Ala	Leu	Lys	Arg	Val	Leu
	290					295					300				
Trp	Lys	Gln	Arg	Ser	Met										
305					310										